

### ABSTRACT OF THE DISCLOSURE

A pump-probe scheme measures the rise time of ultrafast x-ray pulses. Conventional high speed x-ray diagnostics (x-ray streak cameras, PIN diodes, diamond PCD devices) do not provide sufficient time resolution to resolve rise times of x-ray pulses on the order of 50 fs or less as they are being produced by modern fast x-ray sources. Here, we are describing a pump-probe technique that can be employed to measure events where detector resolution is insufficient to resolve the event. The scheme utilizes a diamond plate as an x-ray transducer and a p-polarized probe beam.